S. D.—95. [This leaflet is distributed only with the seeds to which it relates.]

United States Department of Agriculture

BUREAU OF PLANT INDUSTRY

New and Rare Seed Distribution

WASHINGTON, D. C.

SWEET CLOVER

OBJECT OF THE DISTRIBUTION.—The distribution of new and rare seeds has for its object the dissemination of new and rare crops, improved strains of staple crops, and high-grade seed of crops new to sections where the data of the Department indicate such crops to be of considerable promise. Each package contains a sufficient quantity for a preliminary trial, and where it is at all practicable the recipient is urged to use the seed for the production of stocks for future plantings. It is believed that if this practice is followed consistently it will result in a material improvement in the crops of the country.

Please make a full report on the accompanying blank regarding the results obtained with the seed.

DESCRIPTION

Three species of sweet clover are grown under cultivation in the United States at the present time, namely, white sweet clover (*Melilotus alba*), biennial yellow sweet clover (*Melilotus officinalis*), and annual yellow sweet clover (*Melilotus indica*).

White sweet clover, commonly referred to as sweet clover, melilotus or melilot, is by far the most important of these.

The plants resemble alfalfa when young, but they may be distinguished from it by their bitter taste, their smooth, shiny leaves, and later when in bloom by their long, loose racemes of white flowers in contrast to the purple flowers of common alfalfa.

One of the most notable features of sweet clover is its root system. During the first season of growth the roots develop to a large size, striking deeply into the soil and becoming quite fleshy. They often reach a diameter of 1 inch at the crown. Sweet clover has a central taproot, which branches much more freely than the taproot of alfalfa. On account of the fleshy character of the roots a large quantity of vegetable matter is added to the soil even when the tops of the plants are removed.

SOILS ADAPTED TO SWEET CLOVER

Sweet clover has been grown successfully on soil of all the principal types in the United States, provided they were well drained, inoculated, and not acid. This plant prefers limestone soils, and it is upon this type of land that it grows so luxuriantly in Alabama, Mississippi, and Kentucky. Sweet clover appears to be well adapted to gumbo, hardpan, and sandy soils. It is no more tolerant of poor drainage than red clover, but it will withstand a higher water table than alfalfa in the West. This crop is more resistant to alkali than any of the grains or alfalfa. On this account many acres of land too alkaline for other crops are being planted to sweet

clover in parts of the West. It is claimed that other less tolerant plants may be grown after sweet clover has occupied the land for a few years.

LIME REQUIREMENT OF SWEET CLOVER

It is essential to plant sweet clover in soil that is not acid. Acid soil is one of the principal causes for so many failures with this crop in the eastern part of the United States. After lime has been applied to acid soils sweet clover will succeed on them.

Before planting sweet clover in the East or South it is advisable to test the soil for acidity. This may be done by pressing together a handful of moist soil, breaking open the ball, and inserting between the halves a piece of blue litmus paper. The halves should then be pressed tightly together. If the paper turns red in a short time it is a good indication that lime is needed for the successful growth of sweet clover. If the soil is acid, apply lime, 2 tons of ground limestone per acre, before seeding.

PREPARATION OF THE SEED BED

The primary requisite for obtaining a stand of sweet clover is to have a firm, thoroughly compacted seed bed with just enough loose soil on top to cover the seed. The lack of a firm seed bed is often the cause of a poor stand. When sweet clover is seeded in the spring on winter grain the seed bed is usually in good condition. If it is seeded with spring-grown grain, however, the seed bed should be rolled, preferably with a corrugated roller, after seeding. Better results are usually obtained when seeding is done in the spring on ground which has been plowed and thoroughly worked the previous fall.

INOCULATION

Sweet clover will not make a successful growth unless the plants are inoculated. Acid soils and lack of inoculation are the two chief causes for so many failures with this crop. If the field where the seed is to be planted has not previously grown sweet clover, bur clover, yellow trefoil (black medic), or alfalfa, inoculation should be applied to either the soil or the seed. Get information and cultures from your State experiment station or from the United States Department of Agriculture.

SEEDING

The time for seeding sweet clover varies considerably in different sections of the United States. In the eastern part, in the latitude of Washington, D. C., a good stand may be obtained by seeding either in the early spring or about August 15. Better stands are usually obtained from early fall seedings than from spring seedings, as weeds are less troublesome in the autumn; however, plants from fall seedings flower and die the following season, so that a smaller root growth is obtained than when a growth of two full seasons is made.

In the Southern States, as far north as the Ohio River, the practice is to seed during February and the early part of March. In the States farther north than this the time is correspondingly later, until in Minnesota and the Dakotas sweet clover is seeded in the latter part of April and the first part of May.

For the most part sweet clover is seeded with spring grain, mostly early oats. Good stands may be obtained by seeding in the spring on winter grain. When this is done it is better to wait until the seed can be drilled in than to sow earlier on honeycombed ground, as better stands are likely to be obtained. The rainfall for any given region should determine the advisability of sowing with a nurse crop.

Only seed which germinates well should be sown. It is best to use only scarified seed. This germinates more promptly than seed not scarified. A reasonable seeding is 10 to 12 pounds per acre.

In semiarid regions the seed should be sown very early in the spring or as soon as there is sufficient moisture in the soil. At least a portion of the seed should be sown in rows 42 inches apart, so that the crop may be cultivated the same as corn. This insures a much better growth during droughty seasons.

USES OF SWEET CLOVER

Sweet clover is one of the best legumes for hay, pasture, or soil improvement, and good ensilage can be made of it.

For hay it should be cut before the earliest buds show and when the plants are about 30 inches high. Later the plants become woody. The hay is cured like red clover, but as it is somewhat more succulent it is a little more difficult to cure.

A small cutting may often be had the season of seeding in the North, while in the South there may be two or three cuttings. The following year a hay crop and a seed crop or two hay crops are usually obtained. The second crop of sweet clover comes from the buds and young shoots left on the stubble, instead of from the crowns of the plants, as is the case with alfalfa and red clover. On this account the plants should be cut so high that one or two buds or young shoots will be left on each stub if a second crop is to be expected.

Sweet clover is one of the best pasture crops. It will endure drought better than blue grass, and if kept fed down, so that the flowers can not form, will be green and succulent all summer. A good stand will usually provide sufficient pasturage for 1 mature steer or from 20 to 30 shotes to the acre. Livestock when pastured upon this plant make gains which compare very favorably with those obtained on either alfalfa or red clover. When pigs are turned on sweet clover they should receive, in addition to the pasture, a daily grain ration of about 1 pound of grain per hundredweight of livestock.

There is little danger of bloating when cattle or sheep are pastured on sweet clover, but it is safest to avoid turning the stock into a clover pasture when it is wet with dew or rain or when the animals are unusually hungry.

Sweet clover may be turned under in the spring for corn, or the second crop may be turned down in the fall. It will add both nitrogen and humus to the soil and improve the physical condition of the soil. Yields of corn have been materially increased by turning under sweet clover.

SWEET CLOVER AS AN ENSILAGE CROP

Sweet clover promises to become an important ensilage crop in some sections of the country. The first crop the second season will produce about two-thirds as much silage per acre as corn. In addition to this, the second crop may be cut for either hay or seed. When the plants are run into the silo they should preferably be cut with a grain binder, as the bundles can be much more easily handled than loose plants. As the crop contains too much juice to be run into the silo immediately after cutting it is well to permit the bundles to remain in the field until the plants are thoroughly wilted. Chemical analyses and feeding experiments show that sweet clover ensilage is equal to corn silage as feed. No trouble has been experienced in getting stock to eat it.

SWEET CLOVER IN ROTATIONS

Since sweet clover is a biennial plant, it readily lends itself to short rotations. Seeded in the early spring, either alone or with a nurse crop, it produces its largest growth the following season, and is ready either to turn under as a green-manure crop or to be utilized for pasture, hay, or ensilage. In many respects it is similar to red clover. This feature allows it to be used in short rotations with most farm crops. On many soils where red clover or alfalfa does not thrive sweet clover has proved to be an excellent substitute.

ERADICATION

The failure of the farmers throughout the United States to make use of this valuable legume has largely been on account of the fear that sweet clover can not be eradicated from their farms when once started. The biennial nature of the plant makes the problem of eradication very easy. Sweet clover does not give trouble in clean-cultivated or intertilled crops, as the cultivation readily kills young plants. Its appearance in meadows or grain fields should give no alarm, as mowing will serve to kill the sweet clover. This crop is seeded annually on thousands of acres of land in many sections of the country, and not a single case has been noted where it has become aggressive, with the possible exception of irrigated land in the West. In this region it becomes a pest at times along irrigation ditches.

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